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CHUO, TONY SHENG HSIANG	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/664,818
Filing Date: September 16, 2003
Appellant(s): GUAY, GORDON G.

Denis G. Maloney
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6/23/08 appealing from the Office action mailed 11/15/07.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2006/0172171	DEINZER et al	8-2006
2002/0197522	LAWRENCE et al	12-2002
2004/0209133	HIRSCH et al	10-2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 11-15 and 24 are rejected under 35 U.S.C. 102(a) as being anticipated by Deinzer et al (WO 03/043112) using (US 2006/0172171) as an equivalent English translation.

The Deinzer reference discloses a fuel cartridge "1" comprising a housing containing and in direct contact with methanol and having at least a portion of a wall "1b" that is disposed adjacent the fuel egress port "1a" of the cartridge that is comprised of metal (thermally conductive material); a fuel egress port "1a" supported by the housing; and remaining walls "312" of the cartridge that are made of elastomer which is thermally insulating (See paragraphs [0064],[0067],[0072] and Figure 3).

Examiner's note: The inner sleeve "312" is construed as being part of the wall of the housing. In addition, it is inherent that the part of the housing that is made of metal is capable of "sinking heat generated from external components to enhance a delivery rate of methanol in a vapor phase to the egress port of the container" because the housing is made of a thermally conductive material.

Claims 1-10 and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence et al (US 2002/0197522) in view of Hirsch et al (US 2004/0209133).

The Lawrence reference discloses a fuel cartridge "39a" that supplies methanol to a direct methanol fuel cell comprising: a canister "92a" formed of anodized aluminum which is a thermally conductive material; a fuel bladder "86a" that is made of a plastic

material which is thermally insulating; an exit port "88a", wherein at least a portion of the canister is disposed adjacent to the exit port (See paragraphs [0060],[0093],[0094]). It also discloses disposing a fuel cartridge "39" into a compartment of a portable electronic device "32" (See paragraph [0060]). It also discloses portable electronic devices such as computer laptops or notebooks (See paragraph [0064]).

Examiner's note: The housing of the fuel cartridge is construed as a two layer structure with one layer that is thermally conducting and the other layer that is thermally insulating. It is inherent that a portable electronic device such as a computer laptop comprises heat generating components. Therefore, since the fuel cartridge is in direct contact with the computer laptop, it would also be in thermal communication with a heat generating component of the portable electronic device because of the close proximity of the components. In addition, it is also inherent that a computer laptop comprises heat dissipating elements such as the CPU. Therefore, the fuel cartridge is disposed adjacent a heat dissipating element of the portable electronic device.

However, Lawrence et al does not expressly teach a surface area enhanced planar vaporization membrane residing in the fuel cartridge. The Hirsch reference discloses a removable fuel cartridge that includes a methanol delivery film that is a pervaporation membrane made of polyurethane that causes liquid methanol in the fuel cartridge to undergo a phase change to a vaporous fuel before it is delivered to the anode of the MEA (See paragraphs [0012],[0050],[0070]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lawrence fuel cartridge to include a surface

area enhanced planar vaporization membrane residing in the fuel cartridge in order to allow for the use of a high concentration fuel while using passive water management capabilities (See paragraph [0012]).

Examiner's note: The Lawrence fuel cartridge as modified by the Hirsch methanol delivery film would inherently permit heat that is generated by the component in the portable electronic device to increase a vapor pressure of the fuel in the housing to cause the fuel to egress from the cartridge as a vapor.

Claims 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deinzer et al (WO 03/043112) using (US 2006/0172171) as an equivalent English translation as applied to claim 11 above, and further in view of Lawrence et al (US 2002/0197522).

However, Deinzer et al does not expressly teach a fuel cartridge that is configured for a specific electronic device wherein the portion of the wall of the housing of the container is configured to be disposed adjacent a heating dissipating element of the electronic device. The Lawrence reference discloses a fuel cartridge "39" that is configured for a portable electronic device "32" such that the housing of the fuel cartridge is disposed adjacent a heating dissipating element of the electronic device (See paragraph [0060] and Figures 1 and 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Deinzer fuel cartridge for use in a portable electronic device such that the portion of the wall of the housing of the fuel cartridge is

disposed adjacent a heating dissipating element of the electronic device in order to more efficiently utilize the fuel cartridge as a heat sink for a portable electronic device.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deinzer et al (WO 03/043112) using (US 2006/0172171) as an equivalent English translation as applied to claim 11 above, and further in view of Hirsch et al (US 2004/0209133).

However, Deinzer et al does not expressly teach a surface area enhanced planar vaporization membrane residing in the container. The Hirsch reference discloses a removable fuel cartridge that includes a methanol delivery film that is a pervaporation membrane made of polyurethane that causes liquid methanol in the fuel cartridge to undergo a phase change to a vaporous fuel before it is delivered to the anode of the MEA (See paragraphs [0012],[0050],[0070]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Deinzer fuel cartridge to include a surface area enhanced planar vaporization membrane residing in the fuel cartridge in order to allow for the use of a high concentration fuel while using passive water management capabilities (See paragraph [0012]).

(10) Response to Argument

Claim 11

The appellant argues that Deinzer et al fails to suggest the combination of "housing ... containing and in direct contact with a liquid source ..." and "having at least a portion of a wall of the housing being comprised of a thermally conductive material."

In response, the examiner would like to specifically point out the features of claim 11 that are disclosed by the Deinzer fuel cartridge shown in Figure 3 below.

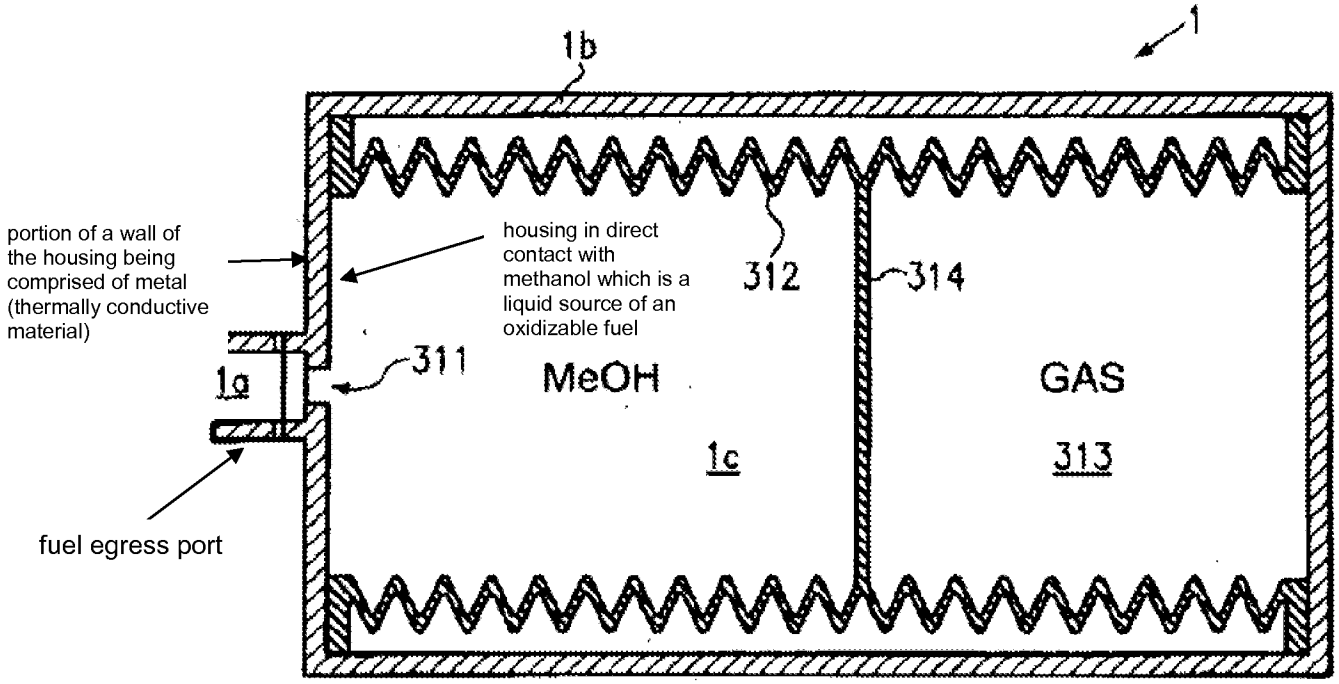

FIG. 3

The appellant further argues that Deinzer would not inherently be capable of sinking heat and would not perform this function as well as the claimed structure at least because Deinzer does not expressly describe "having at least a portion of a wall of the housing being comprised of a thermally conductive material. The Deinzer reference expressly discloses the use of metallic materials for the outer housing "1b" of the fuel cartridge. Since the outer housing is made of a metallic material, it is inherently a thermally conductive material. Therefore, as clearly shown in paragraph [0072] and Figure 3 above, the Deinzer reference does expressly describe at least a portion of a

wall of the housing being comprised of a thermally conductive material. This portion of the wall of the housing located adjacent to the outlet "1a" (egress port) would inherently be capable of sinking heat generated from external components to enhance a delivery rate of methanol in a vapor phase to the egress port of the container.

The appellant further argues that Deinzer does not teach to position such a structure adjacent to heat dissipating components. This argument is not commensurate with the scope of claim 11 because there are no limitations in the claim 11 that require positioning such a structure adjacent to heat dissipating components.

In conclusion, the reasons stated above clearly shows that the Deinzer reference meets all of the structural limitations of claim 11.

Claim 13

The appellant argues that Deinzer does not describe the combination that "a portion of a wall of the housing being comprised of a thermally conductive material" and "remaining portions of walls of the cartridge are thermally insulating". The Deinzer reference expressly discloses that the inner sleeve "312" is formed from an elastomer (thermally insulating material) (See paragraph [0067]). Since this inner sleeve can be construed as being part of the housing of the fuel cartridge, it meets the limitation of "the remaining portion of walls of the cartridge are thermally insulating".

Claim 14

The appellant further argues that Deinzer does not show an arrangement in which the housing contains and is in direct contact with a liquid source of an oxidizable

fuel. As clearly shown in Figure 3 above, the portion of the housing located adjacent to the egress port “1a” is in direct contact with methanol which is a liquid source of an oxidizable fuel.

Claim 1-9

The appellant argues that Lawrence teaches that 88a, the exit port, is supported on the expandable fuel bladder, not the housing, as called for in claim 1. As shown in Figure 7 below, the exit port “88” is indeed supported by the housing "92" as well as attached to the expandable fuel bladder “86”.

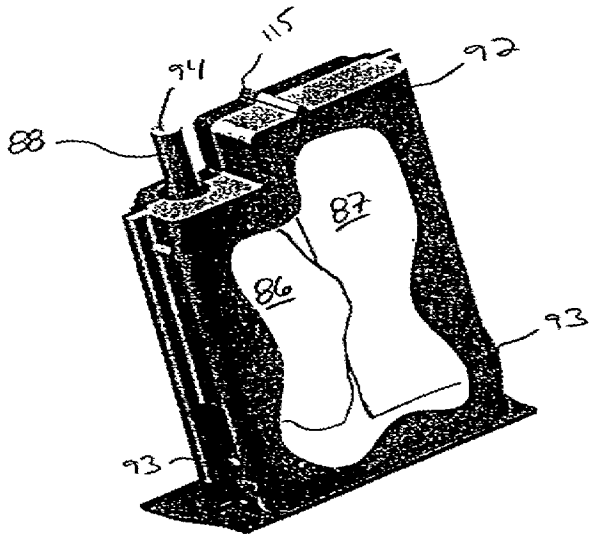

FIG. 7

The appellant further argues that nothing in Hirsch suggests that the MDF is “surface enhanced”. Since there is no clear definition of a “surface area enhanced planar vaporization membrane” provided in the specification of the present application, the examiner maintains the contention that a surface area enhanced planar vaporization

membrane is just any membrane that is capable of causing liquid methanol fuel to undergo a phase change to a vaporous fuel.

The appellant further argues that the examiner has not offered any guidance on how to accomplish this combination and clearly overlooks that the use of these two components together is inconsistent. The examiner would like to point out that there are no structural limitations in claim 1 that detail how the surface area enhanced planar vaporization membrane is configured in the fuel cartridge. Therefore, one skilled in the art would envisage placing the vaporization membrane at the opening of the egress port inside the housing in order to allow the use of high concentration fuel with passive fuel delivery as stated in Hirsch et al, paragraphs [0012] & [0013].

Claim 10

The appellant argues that no combination of Lawrence with Hirsh specifically allude to the inherent desirability of placing the fuel cartridge next to e.g., the CPU, as opposed to other components that may not dissipate appreciable amounts of heat, and indeed neither of the references suggests the sidewall constructions of the main claim. This argument is not commensurate with the scope of claim 10. There are no limitations in the claim that require placing the fuel cartridge next to a component that dissipates heat such as a CPU. Claim 10 only requires a portion of the wall of the housing being comprised of a thermally conductive material that sinks heat. This limitation is met by the Lawrence disclosure of a canister “92a” (housing) that is formed of anodized aluminum which is a thermally conductive material that is capable of sinking heat.

Claim 16

The appellant argues that claim 16 requires use of a structure that is not described or suggested by any combination of the cited art. As disclosed in the Lawrence reference, it is known in the art that fuel cell assemblies that include a fuel cartridge are used in portable electronic devices such as cell phones and computer laptops. It is also well known in the art that computer laptops comprise heat generating components. Therefore, because of the close proximity of the fuel cartridge and the heat generating components, the fuel cartridge would be placed in a compartment of the portable electronic device such that the wall of the housing of the fuel cartridge, comprised of a thermally conductive material, is placed in thermal communication with a heat generating component of the electronic device.

Claim 19

The appellant argues that the examiner has not shown that that it is possible to dispose a fuel cartridge that permits heat that is generated by the component in the electronic device to increase a vapor pressure of the fuel in the housing to cause the fuel to egress from the cartridge as vapor by the construction of the Lawrence and Hirsch references. The Lawrence reference discloses disposing a fuel cartridge in an electronic device that inherently comprises components that generate heat. Since the electronic device implicitly sinks heat into the fuel cartridge, the vapor pressure of the methanol fuel would inherently increase.

Claims 23 and 25

The appellant argues that the references do not suggest a "… fuel cartridge "39" that is configured for a portable electronic device "32" such that the housing of the fuel cartridge is disposed adjacent a heat dissipating element of the electronic device". As shown in Figures 1 and 2 of Lawrence et al, the fuel cartridge is disposed in a compartment of the portable electronic device. Since the portable electronic device inherently comprises heat dissipating elements, then the housing of the fuel cartridge is disposed adjacent a heat dissipating element of the electronic device because of the close proximity of the components.

Claim 26

The appellant argues that the examiner neither shows that Hirsch describes the claimed surface area enhanced planar vaporization membrane residing in the cartridge nor explains how the proposed modification can be accomplished. As stated above, the examiner maintains the contention that one skilled in the art with knowledge of the references would know that the vaporization membrane would necessarily be placed over the opening of the egress port inside of the housing in order to provide the known advantages of delivering the fuel as a vapor.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Tony Chuo

/Tony Chuo/

Examiner, Art Unit 1795

Conferees:

Dah-Wei Yuan

/Dah-Wei D. Yuan/

Supervisory Patent Examiner, Art Unit 1795

/PATRICK RYAN/

Supervisory Patent Examiner, Art Unit 1795

Patrick Ryan